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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/647,365	08/25/2003	Robert D. Stephens	GP-303507	2133

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Kathryn A. Marra
General Motors Corporation, Legal Staff
300 Renaissance Center, Mail Code 482-C23-B21
P.O. Box 300
Detroit, MI 48265-3000

EXAMINER

BHAT, NINA NMN

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 02/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/647,365

Applicant(s)

STEPHENS, ROBERT D.

Examiner

N. Bhat

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 December 2005 and 13 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 27-38 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-38 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

1. The examiner acknowledges applicant's election without traverse of claims 2-12 and 14-26. Upon reviewing the restriction requirement and the status of the claims, the instant examiner discussed with applicant's representative Mr. Eusebi on February 13, 2006, that the elected claims were dependent upon withdrawn base claims. The examiner discussed with applicant that the most expedient way to correct this problem was to re-instate claims 1 and 13 previously withdrawn. Applicant's representative authorized the examiner to re-instate claims 1 and 13 so that the elected apparatus claims properly dependent from a pending base claim.

2. Action on the merits of claims 1-26 follows:

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-5, 9,11, 13-16, 25 and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Cardinal USP 4,588,577.

Cardinal teaches an apparatus for generating hydrogen from water by means of a metallic catalyst which includes a container housing a water based solution a metal constituent and a generator for ultrasonically irradiating the water mixture and metallic catalyst to ultrasonic radiation. The container is a reactor, the mixture of water and metallic catalyst is placed in the reactor, and the reactor is a copper tube, which further includes a glass burette for collection of the generated hydrogen. Cardinal teaches that

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substantial increases in hydrogen gas generation can be obtained by subjecting the water catalyst interface to ultrasonic radiation. Applicant's specific metallic catalyst includes one or more metal selected from the group consisting of nickel, cobalt, iron, platinum, palladium, magnesium copper and alloys thereof. Cardinal further teaches that the hydrogen generator and hydrogen gaseous products can be directed to an internal combustion engine in a land vehicle or a marine vessel or to a burner in an electrical generating facility. Cardinal fully anticipates applicant's claims as presently drafted. [Note Column 1, lines 66-67, Column 2, lines 1, Column 3, lines 19-26, Examples 1-8 and Column 5, lines 17-24]

5. Claims 1-6, 8-9, 11-12, 13-17, 19-20, 22-23 and 25-26 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 2002-234702 machine translated.

6. JP 2002-234702 teaches providing a hydrogen generator, which is used in combination with fuel cells for the generation of electricity or power in combination with an automobile. Specifically, the hydrogen generator (1) includes ultrasonic generating means (4), which generates an ultrasonic wave, which irradiates the reaction container (3), which further contains water, a complex metal hydride and catalyst. The catalyst material includes noble metals such as platinum, palladium, magnesium, manganese, iron, cobalt, etc. The catalyst can be of any form or shape and includes plates, particles, pellets, monolithic form, fibrous forms or coated on a support. [See Paragraph [0026-0027]] The catalyst metals can include a metal oxide support or carbon support. JP 2002-234702 specifically teaches that subjecting the metal hydride and water to ultrasonic radiation, the hydrolysis reaction takes place thereby generating hydrogen,

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the hydrogen (6) from the hydrogen exhaust pipe (2) is supplied to a reaction cell of a fuel cell which is not shown in drawing 1.[Note Paragraphs[0024 to 0031]]The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 7, 10, 18 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2002-234702.

JP 2002-234702 discloses the invention substantially as claimed for reasons delineated above.

However, JP 2002-234702 does not teach specifically that the metal constituent coats an interior surface of the container or that the hydrogen is removed from the hydrogen generator using a compressor.

To specifically coat an interior surface of the container or reactor such as has been claimed by applicant would have been obvious to one having ordinary skill in the

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art from the teachings of JP 2002-234702 because, JP 2002-234702 specifically teaches that the catalyst can be of any shape or form which can be used in the hydrogen generator. JP 2002-234702 further teaches that the catalyst can be used in a monolith and as such one familiar with reactor design or hydrogen generators would recognized that if a monolith can be used a coating of the catalyst could equally be used and this would be an obvious matter of design choice, the choice of what type of catalyst to be used is specific to the construction and design of the hydrogen generator and to modify the catalyst such that it is coated on the inside of the reactor would have been obvious to one having ordinary skill in the art. With respect to applicant's proviso that the hydrogen be extracted using a compressor, this would have been an obvious design choice as well, where there have been means to remove and use the hydrogen generated from the ultrasonic reaction of the metal complex, catalyst and water to produce hydrogen, to use a compressor specifically where it has been taught in JP 2002-234702 to move the hydrogen through the system so that the hydrogen can be used in a fuel cell or any other application renders applicant's claims as a whole obvious to one having ordinary skill in the art at the time the invention was made.

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. JP 2004175583 teaches a method for generating hydrogen with a when water containing alcohol is irradiated with ultrasonic waves.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to N. Bhat whose telephone number is 571-272-1397. The examiner can normally be reached on Monday-Friday, 9:30AM-6:00PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'N. Bhat', with a stylized flourish extending from the end.

N. Bhat
Primary Examiner
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